Cost and Management

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DEPARTMENT STORE COST ACCOUNTING
By H. B. HALLIDAY 52

Office Manager for the T. Eaton Company Limited, Toronto, Mr. Halliday has been associated with this company for twenty-four years. Born in Belfast, Ireland, he attended Belfast and Trent College, Derbyshire, and was the gold medallist in the examinations for his C.A. degree. He is a member of the Institute of Chartered Accountants of Ontario, the Chartered Institute of Secretaries, and is a Past Chairman of the Toronto Chapter, N.O.M.A. His paper on "Department Store Cost Accounting" was presented at the September 1953 meeting of the Ottawa Chapter of the Society of Industrial and Cost Accountants.

DEPRECIATION BASED ON REPLACEMENT VALUE — WHAT WOULD IT MEAN IN CANADA?
By GEORGE MOLLER 60

Treasurer and Comptroller of Robertson-Irwin Limited in Hamilton, Ontario, Dr. Moller came to Canada in 1936 and joined Geo. A. Touche & Co. In Europe he studied Law and Political Science at the University of Prague and upon graduation received the degree of Doctor Juris. For some time he was Secretary to the Management of the Bohemian Union Bank. Admitted to membership in the Institute of Chartered Accountants in 1945, Dr. Moller is a Registered Member of The Society of Industrial and Cost Accountants of Ontario and Chairman of the Legislation Committee of the Canadian Society.

PROPERTY RECORDS FOR MULTI-PURPOSE USE
By WILLIAM B. JONES 67

Controller of the Eureka Specialty Printing Company, Scranton, Pennsylvania, Mr. Jones is a graduate of the Wharton Extension School of Finance, University of Pennsylvania. Before joining his present company, he was associated with Haskins and Sells, Certified Public Accountants, Cleveland, and the Firestone Tire and Rubber Company, Aircraft Division, Akron. In 1952-53, he was Chairman of the Scranton Chapter of the National Association of Cost Accountants. This article by Mr. Jones appears in *Cost and Management* through the courtesy of the National Association of Cost Accountants.

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Editorial Comment . . .

Can Accountants Be Made Into Executives?

When we consider the outstanding achievements of many accountants in top executive positions, the above question may appear academic or even asinine. However, if there is any one problem that dominates corporate thinking to-day, it is how to find the right kind of material for executive development. An examination of the proposition may be of some value and perhaps a little disturbing.

What are the requirements of an executive? At the outset we must say that there is no one profile of all the qualities. The man who functions well in an established mature industry may be totally unfit for the needs of an expanding one. The emphasis on sales, production or finance may shift requirements one way or another. Yet there are some definable trends in the matter.

Business is becoming more vocation-minded. A recognizable type — the business executive — is emerging from the raw material mass of specialists and professional. More and more trainees are majoring in Business Administration in order to get the broad gauge approach. Men who can understand the whole sweep of modern economics, politics and social life will move up. Not so long ago we all discussed to interminable lengths the suitability of salesmen, accountants or engineers for the executive throne. To-day, it is distinctly old hat to talk about what profession makes the ideal manager. Corporations are looking for the man with the broad abilities and a flexible mentality — one who can get along with people and yet have the spark and drive to keep an organization dynamic.

Without being particularly prophetic, this is the kind of executive that will be needed for some time to come in the complex economic and social climate of Canadian industry.

A man is predominantly all that has gone to produce his personality, including his schooling, work experience, reading, and the entire web of business and social relationships around him. The accountant is no exception. From training and performance he is a child of precedence and rigid standards of practice. He thinks in terms of infinite accuracy in all situations and builds up his plans for action on the results of historical comparison rather than through a trained intuition. Traditional reliance on dollar figures and a suspicion of non-figure facts usually means he is incapable of creative thinking. He has been taught that infinite care of details and the double check are first principles and thus his attitude towards a calculated risk is at least a restrained one. The silent atmosphere around the ledgers is not conducive towards developing an understanding of human nature. Unless he has had rather full experience as an office manager, the accountant is apt to be inadept at personnel relations.

Most of these characteristics are common to the accounting profession and may even be desirable for good work habits in a most exacting art. One must also admit that a great many will wish to remain the highly trained, careful, trustworthy specialists so described above.

Others will, however, wish to move into the upper ranks of management and for them the problem of the broad executive approach is rather acute. Nearly everything in their business habits and developed attitudes is wrong for top administration. The most common criticism made by management about accountants is their lack of vision. With the enormous store of business facts at their disposal, they should be the most progressive members of the management team. In an age when accounting accurately records physical activity in terms of dollars, as well as the traditional dollar facts, it is more than ever in a position to do a great service at high levels.

What can we do about this? Several suggestions may be made. A broader approach in our educational effort is necessary, perhaps, in post-graduate work rather than in basic training. This additional work should include general business administration, human relations, the problems of communication, and broad managerial economics.

Much of this can be done at the academic level but a self-training programme must be carried on to acquire the flexibility of approach and balanced mind needed to solve big business problems. The executive-minded accountant must think rather than learn; question and solve rather than accept.

Can accountants be made into executives? They can but may have to work harder at it than others less bound by tradition and precept.

PERSONALS

J. W. Hammond, R.I.A., has been appointed General Manager of the Hamilton Hydro Electric System. Mr. Hammond, a member of the Hamilton Chapter of the Society of Industrial and Cost Accountants, is a Past Chairman of this Chapter.

H. B. Hector, R.I.A., was appointed Comptroller of Canadian Canners Limited, Hamilton. A member of the Hamilton Chapter, Mr. Hector was Chief Accountant of this company before receiving his present appointment.

J. S. Lepper, R.I.A., Educational Director of the New Brunswick Society has joined the New Brunswick Electric Power Commission, Fredericton, as Chief Cost Accountant. He was formerly associated with T. McAvity and Sons Limited in St. John.

Walter Nobbs, R.I.A., C.A., of the Calgary Chapter, recently passed his final examinations and was admitted to the Institute of Chartered Accountants of Alberta.

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C & M Round-Up . . .

By N. R. Barfoot, R.I.A.

Annual Statements

A recent survey by the American Institute of Accountants of some 600 corporation reports shows some trends that may be of interest to Canadians:

69% of the reports show financial information on a comparative basis for more than one year,

78% present figures rounded out to the dollar,

75% use "income" or "earnings" to describe the profit and loss statement,

50% use "retained earnings" in place of "earned surplus".

Industrial Development Bank

The Industrial Development Bank which was established by the government in 1945 to make loans to industrial enterprises has released its annual report. Significant highlights are as follows:

Total loans to date	78.5 million
During 1953 loans were	13.1 million
Number of loans in force, Sept. 1953	633
Loans made in 1953	217

Ontario and Quebec concerns have accounted for 52 million of the gross total loans made to date.

500 of the 633 loans in force now are in the $5,000.00 to $100,000.00 category.

Clerks

A few facts on clerical costs may startle you:

In 1900 one clerk was on the payroll for 30 shop workers,

In 1935 the same clerk took care of 10 shop workers,

In 1950 that clerk was hard put to keep up with 2½ factory employees.

In 1900 there were 20,000 clerical workers for each million of population,

In 1950 the level had grown to 102,000.

$70.00 of office equipment kept each clerk employed in 1900. $1,700.00 per clerical employee must now be spent.

Did you know that only 15% of office work is mechanized compared to 90% of factory?

Most firms don't budget a cent for office cost reduction.

Electronics and the Office

Among the current applications of electronics to office work are the following:

Insurance companies are storing policy information in electronic machines as well as computing actuarial statistics, accounting problems and premium billings.

An automobile company is producing on a daily basis its entire production scheduling plan for five months ahead.

Monthly P & L statements and balance sheets are produced for one large chemical firm by electronic means.

Inventory control problems of large department stores are being handled by electronic machines.

All kinds of payroll, cost accounting, depreciation, depletion and engineering problems are being solved in fractions of the time required by standard calculating equipment.

National Health

In view of the concern by many groups in Canada with a national health plan sponsored by the federal government, it might be of interest to see to what extent Canadians are covered in this way at the moment. Here are a few figures and points of consideration:

37.5% of Canadians are insured by private agencies to cover the bulk of hospital expense; an additional 20% are covered by provincial plans,

27% have insurance against surgical fees,

20% are insured for medical expenses.

In 1935 all classes of accident and sickness insurance policies paid out 3 millions in claims,

In 1953 the same payments were 50.3 millions.

Blue Cross, the most popular form of hospital insurance, paid out $300,000.00 in 1942. Last year the sum was 18.8 millions.

Additional public services provided are free mental hospitals (most provinces); tuberculosis either free or on an ability to pay basis; poliomyelitis treatment provided by 5 provinces.

Cancer clinics provide free diagnostic service and radium or X-ray therapy without charge.

Workmen's Compensation, which is financed by industry, provides a free service to all workers, on a provincial basis, for another large segment of hospital and medical service.

A typical plan shows a per annum cost of $117.00. This is made up of hospital, $50.00; surgical, $24.00, and medical, $43.00. Usually half to three-quarters is paid by the employer.

This Food Business

It is somewhat more than obvious that the Canadian economy is in a booming state. However, it is rather too easy to think of it in terms of industrial and mining expansion, of corporation capital outlay and profits. How is it with the average Canadian? At least one answer is in his food bill. From these few highlights on the grocery business it is

certain that Canadians are eating and living better than ever before in their history:

In 1941, ½ billion was spent on food,
In 1953, over 2 billion passed over food counters.
Although the population is up 20% and prices are up considerably from 1941, the main reason has been the great prosperity of the Canadian people plus the merchandising skill of the modern food purveyor.
Independent grocers sold 1.4 billions or 65% of the total business, Chains sold over .7 billion or 35%.
While independent stores are still in the majority, there is a trend towards the groceteria type of store stocking baked goods, meats and common household articles as well as standard groceries.
Specialty food stores are on the wane, since even the large chains catering in the main to the average buyer, now stock imported and specialty articles.

Incomes — Then and Now

In 1941 for every $1.00 of income earned by the upper income group ($15,000.00 per year and up) $5.50 was earned by the 3 to 15,000 middle income group. This year the ratio is $1 to $7.69.

Over half the total income was earned by this middle group and only 7% by the group over $15,000.00.

The middle income group paid 57% of all the income taxes and the upper income group 21%.

This means that Canada's earning potential for taxes and more important investment is in this middle group.

This group is responsible for the rise of consumers' credit from 800 millions in 1949 to 1.73 billions in 1953.

The middle income group is really the backbone of the consumer economy. They buy and borrow heavily for homes, cars, and appliances and pay back regularly. Curiously enough this group also saves well. Bank deposits are at an all time high. Average monthly insurance sales to-day are 175 millions compared to less than one quarter that figure ten years ago. This group is probably also the source of future investment.

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DEBATABLE ISSUES IN MODERN ACCOUNTING (PART I), by Mary E. Murphy — The Chartered Accountant in Australia — Oct. '53.

DEBATABLE ISSUES IN MODERN ACCOUNTING (PART II), by Mary E. Murphy — The Chartered Accountant in Australia — Nov. '53.

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WHAT THE EXTERNAL AUDITOR REQUIRES OF THE COMPANY SECRETARY, by Ed. F. Meier and G. H. Matthews — The Australian Accountant — Oct. '53.

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WHAT A BANKER EXPECTS OF AN ACCOUNTANT, by R. D. Moore — The Accountants' Journal — Oct. '53.

BUSINESS GROWTH AND PLANNING

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Department Store Cost Accounting . . .

By H. B. Halliday, C.A., F.C.I.S.,
Office Manager,
The T. Eaton Company Limited, Toronto, Ontario.

There are two basic systems used for department store cost accounting — the Net Profit Plan and the Contributioa Plan. In this paper, the author presents a hypothetical case study of a quantity of goods as it passes through various operational procedures of a department store, and shows how the costs accrued enroute are recorded and charged under the Net Profit Plan.

IT HAS long been the contention of those engaged in the retail department store business, that for the volume of sales, merchandise handled, staff employed, and capital risked, the department store realizes the smallest net return of any business in the commercial field.

What are the bases for this opinion? Perhaps an examination of a shipment of goods as it passes through all the procedures of a department store operation will indicate the tragedy of costs piled upon costs. For example, a buyer for a department store has decided to purchase women's high style shoes in Switzerland. These shoes cost $5,000.00 which is to be paid to the supplier in Switzerland. Before going ahead with the purchases the buyer knows the following important causes of costs:

1. In deciding on these shoes he has had the assistance of buyers who have travelled the world's style and manufacturing centres, the help of stylists who keep abreast of designs, colours, fabrics, etc., and European Buying Offices whose staff know markets, sources of supply, shipping procedures, etc.
2. Back of him in the world market is a Treasury Department fully conversant with standard, blocked, multiple and export currencies and regulations: Customs and Traffic people who know foreign exports regulations, Customs requirements and economical shipping routes, etc.

The shoes arrive in Canada and the supplier is paid his $5,000.00. In addition to this initial purchase price, the following costs also enter into the picture: Freight, $125.00; Cartage, $2.00; Duty, $2,038.00; Marine Insurance, $35.00. These expenses, in addition to the original cost of $5,000.00, give a tota! purchase price of $7,200.00.

The department store sells all the shoes and after clearing broken sizes, handling customers' adjustments, exchanges, refunds, etc., which can be costly, but which are an inescapable responsibility of the business, the store realizes 11,000.00. From this figure, the laid down cost of $7,200.00 is deducted leaving the fat, healthy and sizeable gross profit of $3,800.00. The procurement, stocking and selling of the shoes puts in motion the complete and highly complex modern retail instrument. It played a lovely tune and the shoes sold, but now the "retail costs" piper must be paid.

An amazing series of direct costs, which were not distributed or allocated were incurred. Wages amounted to $1,500.00. Nicely illustrated advertisements cost $300.00. A Merchandise display which included an interior exhibit; a window display, consisting of a pair of shoes, a hanky, a bottle of perfume, and a string of beads in a 60 square foot window; and a share of a fashion show totalled $60.00. The clerical and parcelling costs in the shoe department which encompassed such things as taking phone calls, having stockkeepers, a non-selling clerical staff, parcellers, inspectors, etc. amounted to $30.00. Uniformed drivers, clean trucks, and delivery to a wide area brought the delivery expenses to $165.00. The buying, travelling, and the search for merchandise ran into money and the travelling expenses totalled $70.00.

The costs of the Buying Offices, with their staffs and expenses are shared by all departments and the cost for this account amounted to $80.00. The Shoe Department's share of the administrative expenses had to be paid. Their cost was $50.00 and this included the expense of merchandise and operating supervision, etc. To assist in selling charge accounts, deposit accounts, and revolving credit accounts are offered. These services amounted to $150.00. Records must be kept of the purchases, sales and costs and the receipt of goods, payment of customs, freight, etc. The expenses for the general office, general audit and sales audit totalled $150.00. Since good customer service is the watchword in retail department stores, there was expense for a superintendent with a staff of floormen, caretakers and chauffeurs. The total cost for superintendence was $100.00. Public Relations or good customer contacts keep the business in the public eye. For the part taken in exhibitions, fairs, bazaars, Santa Claus Parades and student educational tours, the department's share of this expense was $25.00.

All big businesses have head offices filled with lawyers, accountants, economists and financial statisticians. The department's contribution here was $25.00. Employee costs are becoming increasingly important and the costs for welfare, recreation and training offices concerned with employment, wages and employee relations was $100.00.

The landlord, light, heat and maintenace constituted a big item and amounted to $440.00. Since competitors installed a shoe section, almost as swish as a cocktail bar; the department's share to get into the picture with some chrome and new colours was $55.00 for fixtures and alterations. The sundry occupancy which includes business taxes, special decorations for the Coronation, and changes due to city ordinance was $80.00. Financing and insuring the stock had to be paid and totalled $120.00.

At this point $3,500.00 of the $3,800.00 was spent, but before considering what was earned and owned, $100.00 was set aside for the pension plan. National donations to the building of a new hospital, a

EXHIBIT I

STATEMENT OF INCOME — SWISS SHOES

Sales		$ 11,000.00
Cost of Goods Sold		
Inventory	$ 5,000.00	
Freight	125.00	
Cartage	2.00	
Duty	2,038.00	
Marine Insurance	35.00	$ 7,200.00
Retail Gross Profit		$ 3,800.00
Direct Costs		
Sales Wages	$ 1,500.00	
Advertising	300.00	
Merchandise Display	60.00	
Parcelling — Department, Clerical	30.00	
Delivery	165.00	
Travelling	70.00	
Allocated Costs		
Buying Offices	$ 80.00	
Merchandising and Operating Supervision	50.00	
Customers' Accounts	150.00	
General Office, General Audit, Sales Audit	150.00	
Superintendence	100.00	
Public Relations	25.00	
Pensions	100.00	
National Donations	20.00	
Income Tax	90.00	$ 3,710.00
Profit		$ 90.00

needy university, and the relief fund for a recent tidal wave disaster, totalled $20.00. These expenses reduced the $300.00 to $180.00. Then the Dominion Income Tax man came along and claimed half, which left the store with $90.00 for expansion or dividends. This $90.00 was the return on a sale of $11,000.00. The Income Statement (Exhibit I) gives the complete picture of how the expenses reduced the sale to an almost negligible figure.

Is it any wonder that a manager, when asked by a young lady, "Do you have Notions in this section?" replied, "Yes, but we suppress them during working hours."

Distribution of Operating Costs

It is evident from the illustration of shrinking profits, that cost in the departmental retail stores is not based on units, but upon departments. Each department is regarded as a separate trading entity and all records of costs used in operating accounts are constructed to bring to each department its share of all Company costs.

The operating costs in our tragic example would be distributed in the following manner:

Sales Wages. The payroll is designed to show wages by departments. Each Department is charged from the payroll for total wages.

Advertising. Detailed advertising costs are kept. Newspaper and publications space costs, layout costs, sketching, cuts, copy writing, office clerical, etc., are recorded. The costs are charged out to departments on an ad space basis.

Merchandise Display. Records are kept of window costs for display people, artists, display pieces, designers, etc. The records also cover interior displays, fashion shows, special promotions. Window diplays and promotions are, in the main, charged to the participating department on a rental or actual cost basis. Special Institutional or Public Relations windows are distributed as part of Administration Expense.

Delivery. All the numerous delivery costs such as wages, uniforms, maintenance depreciation, gas, oil, licenses, etc., are compiled and a "weighted parcel rate" determined. Size, handling convenience, weight of merchandise to be delivered, sets the rate chargeable to each department.

Parcelling. Expenses are compiled and distributed in terms of staff and supplies.

Department — Clerical — Phones, etc. Sales and Expense Wages and supplies are charged to department when incurred. Phone costs are apportioned on instruments used. Incurred charges for long distance are charged directly to department.

Travel. Travel costs are charged or apportioned as incurred.

Buying Offices. Detailed records of purchases from each country give a basis for distribution of the costs of the various Buying Offices.

Operating Supervision. Cost of merchandise managers, expense controllers, treasury staff, etc., is compiled and distributed over the departments on basis of sales.

Charge Accounts and Customer Accounts. The complete record of wages, supplies, etc., reduced by any surcharge earning, is distributed on sales.

General Offices - Receiving Rooms. Total expenses are distributed on basis of purchases.

Sales Audit. Costs are recorded on the basis of a sales-checks count.

Superintendence. All costs recorded and distributed on sales.

Public Relations. All costs recorded and distributed on sales.

Head Office. A contribution is made toward Head Office costs by charging a percentage on sales at cost to each retail department.

Employee Expense. These expenses are compiled and distributed on number of employees.

Occupancy. All occupancy costs distributed in relation to the area occupied.

Fixtures and Alterations. Records are kept in terms of departments. A direct charge is made.

Sundry Occupancy. Business Tax, Special Decorators, etc., are distributed on sales.

Interest and Insurance on Stock. An average value at cost of merchandise stock is used.

Pensions. These expenses are distributed on payroll.

Donations. These are distributed on sales.

This sketch of the distribution of costs shows why a great many detailed accounts are necessary. For Toronto and Ontario the T. Eaton Company Limited uses approximately 900 different Expense or Cost Accounts.

Now that the final uses of costs in terms of department results have been reviewed, it might be well to mention some of the basic principles upon which department store cost figures are built. There are very important uses for these costs such as comparisons with other Companies, between branches, past seasons, and arranging budgets and controlling expenditures generally.

From experience, it is recognized how much fun can be had with a cost that has run, or is in danger of running, out of line. A regular witch-hunt is staged to discover who or what is out of line.

Most cost systems used in the retail field are developed primarily from two different approaches to the question of retail costs. The plan which has produced the information already dealt with is known as the *Net Profit Plan.* The other system is known as the *Contribution Plan.*

Contribution Plan

As the name implies, this plan requires records which will show each department making a contribution — preferably a profit — to the operating results of a store. This contribution is made after all the costs, which can be said to have been incurred by the individual departments, have been charged. Costs of a general nature are not allocated or apportioned but are applied against the total of all departments' contributions.

The rules of operation for a Contribution Plan of charging costs are:

(a) Departments are not separate businesses but are part of a store. Therefore, charge departments only those costs which they incur directly and costs that would disappear if the departments closed.

(b) No distribution is made departmentally of general or inescapable costs.

(c) Each department makes a contribution of profit after all direct costs have been charged. Department management is not concerned with the distribution of costs over which it has no control.

The National Retail Dry Goods Association, an organization with a large membership consisting of Department Stores of various sizes, has accepted the Contribution Plan as a suitable alternative method for recording Store operating costs.

There are other methods which are perhaps a combination of, or an adaptation of parts of both systems, but by and large these two routines are used throughout the trade.

Recently the true Cost Accounting base of "man-hours" has come into the Retail Costs picture, but its function has been that of process comparison in all forms of procedure. As yet, it is not a base for recording or distributing costs.

The Net Profit Plan

The Net Profit Plan requires a great many carefully detailed records to carry out its methods which are usually defined as follows:

(a) Charge all costs directly to departments, as far as possible, when they are incurred.

(b) Items of costs not charged directly should be carefully studied as to the conditions which caused them to be incurred and then distributed over departments.

(c) The selection of the methods of distribution best suited to bring out true costs.

(d) A careful distribution of indirect costs chargeable to all departments. Weighings, easements, etc., are used to ge true comparable costs.

The fact that detailed records are necessary, cannot be emphasized too strongly. The accounts follow out the pattern outlined earlier and it is necessary to back basic accounts with secondary distribution accounts early in the proceedings.

For instance, an Expense Account is opened for each of the Retail, Manufacturing and, for the want of a better term, Administration Departments in the organization. The Retail Department Accounts take the direct charges applicable to departments coming from processed suppliers' invoices and, in addition, items such as wages, supplies, advertising and merchandise display, but in order to get a proper charge for, say advertising, detailed Advertising Accounts must be set up and a method of charging the Retail Departments with the correct advertising costs determined. Therefore, advertising costs on ad space is charged out and the Advertising Accounts are credited with this charge. The advertising man makes good and sure that he charges enough to cover all the copy-writing, sketching, and ad spaces costs which he has incurred.

Again, any mechanical work which may be required from carpenters, painters, electricians, etc., is requisitioned and charged immediately. Printing costs and other supplies are requisitioned and charged to the department. All of these engineering, supply, merchandise display departments must keep detailed records of costs so they, in turn, can make a proper charge to the Retail or Administration Department using their services. From this, it is evident how the records fan out.

In discussing definition "B", it is imperative that "items of costs not charged directly should be carefully studied as to conditions which caused them to be incurred and then distributed over departments." This means another set of accounts which are concerned with costs incurred by certain groups of departments. For instance, a Spring Fashion Show cost could not be charged to the stoves, plumbing, and bathroom fixtures, unless an ingenious display man worked this type of merchandise into the Fashion Show presentation, and some of these boys are smart. Changes in departments' locations and set-ups often call for a distribution of costs over several individual departments. There again, accurate and detailed accounts must be provided with the assistance of the Display or Construction Department responsible for the presentation or job.

"The selection of the methods of distribution best suitable to bring out true costs", is the definition given to Section "C". Right here, is the Waterloo of many attempts at comparison. The matter of true costs is a very touchy subject.

The prime question is that in order to get the "true costs" of operating to Customers' Accounts, should Rent, Space Charges, a share of Employees' Accounts such as Employment Office, Time Office, Welfare, etc., for example, be charged in addition to wages, supplies and repairs? True, the Customers' Accounts Office is charged for any advertising or alterations or mechanical work, but should the cost of an Administration Office be built up only to redistribute it on the other bases? Most approved method studies say that it should, but some cost men short-circuit many of the charges. Hence comparisons become tricky unless there is knowledge of exactly what is included.

In any event, attempts are made to group costs into different sets for distribution. There are groups of costs distributed by the number of employees, others by the number of transactions; others by amount in dollars of purchases; others by amount in dollars of payroll, etc. All this was brought out in the examples of costs on the shoes.

Section "D" is defined as "A careful distribution of indirect costs chargeable to all departments." Weighings, easements, etc., are used to get true comparable costs.

The distribution of some of the important costs such as rent, require a very careful detailed study of the value of the space occupied by each department. Obviously, a department located on the main aisle of the main floor is occupying much more valuable space than one located in a corner of the third floor and charges are made accordingly. There seems to be no scientific basic design for a department store as yet. Groceterias employ standard designs based on convenience and applied psychology, but no one seems to have hit on the ideal department store suitable to all cities.

Occupancy charges for Alterations and Repairs, Caretaking, Night and Day, Elevators, Fire Protection, Floormen and Wash-Rooms are based on square feet occupied.

Delivery is another cost which requires careful study before distribution. The size, weight, fragility of different kinds of merchandise is a determining factor. Each department is usually given a parcel rate based on handling experience.

The bulk of administration costs are distributed on Sales, but here again careful study of conditions is needed, especially if consideration is given to the different divisions of a company, such as a City Retail Store or Stores, a Mail Order operation and a Manufacturing Operation.

Many of the over-all costs must be first distributed on a sensibly determined basis before any apportionment over the retail or manufacturing departments can be made. The Sales yardstick has to be adjusted to suit certain departments who have low profit customers' service sales such as Grocery or Meat Departments, Restaurants and Lunchrooms. Guidance is given by department store retail associations as to fair methods of distribution, but at no time can any costs be distributed without a detailed study of all the various aspects and implications relative to the costs to be distributed.

Procedure for Cost Data

Now a word or two about the actual procedures which produce all the cost information. At Eaton's a punch-card system with tabulating machines is used. The punch-card system calls for each invoice, requisition, voucher or origin of charge to be recorded on a punch-card in terms of a code which puts the charge in the proper account, and also gives a description of the charge. Before these invoices are released to the punch-card operation the usual controls are established, suppliers' accounts credited, or charged with credit notes and any internal credit given to the supplying or servicing departments.

The tabulating machines produce detailed accounts from the punch-cards. In the case of direct costs, each department is given a statement of expenditures every four weeks. Administration Departments are also given a statement of costs each four weeks, and accounts which need periodic distribution on completion are supplied in detail to the department or office responsible for distributing such costs.

The administration costs are built up for six months. These are watched and checked at all times for any out of line charges and at the end of the six months the distribution of these costs over retail departments is undertaken by the methods outlined earlier. In the meantime, estimated costs are provided for the guidance of the retail departments. Each department manager of a retail department, in addition to receiving information regarding direct costs, will be given a fairly accurate idea of the share of all indirect costs with which he will be charged.

Depreciation Based on Replacement Value. What Would It Mean in Canada? . . .

By GEORGE MOLLER, D.Jur., C.A., R.I.A.,
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Society of Industrial and Cost Accountants of Canada.

The Legislation Committee of the Society of Industrial and Cost Accountants of Canada has embarked on a research project for the purpose of determining the extent to which reported profits would have been affected by the use of depreciation accounting on replacement cost as compared to original cost, and the consequent impact on the policy governing the retention of earning in Canadian business. In this article, the Committee Chairman presents a synopsis of current discussion on the subject, as an introduction to the research study.

CANADIANS do not like to have Canada looked upon as an annex of the big United States. If problems of significance arise in the accounting field as in any other sphere of interest, it befits us to look into the situation independently in the light of Canadian conditions, in order to come to the conclusions which promise the greatest achievable satisfaction to the interested parties in Canada. In doing so, we will be well advised to take stock of the opinions recorded elsewhere before embarking on our own venture but we would forego our birthright if we were to accept the thinking done and research carried out abroad as necessarily conclusive for Canadian industry and business.

The Problem: Replacement Cost Depreciation

The following quotation from the Editorial Section of the *Canadian Tax Journal*[1] will bring us close to our problem:

> "In the flood of literature concerning depreciation adjustments for price level changes, the tax consequences for differently situated corporations have rarely received more than passing mention.
>
> "Probably few people assume that there would be no increase in the rate of the corporate income tax if replacement cost depreciation were adopted. It may, however, be the general assumption that the adoption of replacement cost during a period of rising prices would result in a sufficient decrease in corporate tax payments to benefit all corporations. This assumption is surely too sanguine. For the year 1950 and 1951 it has been estimated that the adoption of replacement cost in the United States would have increased corporation depreciation charges by 10 to 20 per cent. If depreciation charges are one-half profits before tax, this would mean a decrease in taxable income of 5 to 10 per cent. In Canada this would result in a revenue loss of $60 to $120 million. In present circumstances it seems reasonable to assume, therefore, that nearly all of a reduction in the yield of the corporate income tax consequent upon the increase in depreciation charges would be made good by an

[1] Canadian Tax Journal, Vol. I, No. 6 — November - December 1953 (p. 529), Canadian Tax Foundation, Toronto.

increase in the rate of tax. An alternative approach, which amounts to the same thing is to assume that replacement cost might be adopted in lieu of a decrease in the rate of tax if the time arrives when there is room for substantial tax reductions.

"The main economic argument advanced in favour of replacement cost is that corporations are unable to retain sufficient earnings to allow them to maintain their capacity intact and also to expand that capacity to play their proper role in the economic growth of the nation. Recourse must therefore be made to an allegedly inadequate capital market. Private savings, it is said, are insufficient for the capital needs of industry and, therefore, there should be higher corporate retained earnings to sustain a high rate of economic growth. Although this contention has considerable merit as an argument for the reduction of corporate tax payments, it is inappropriate as an argument for making the reduction by adopting replacement cost depreciation.

"In an era in which the trend of prices is upward, and as compared to a rate reduction, adoption of replacement cost would have several characteristics. It would be more advantageous to:

1. Industries in which depreciation charges are high relative to their wage bills.
2. Industries having a large proportion of capital assets with a very long economic life.
3. Old firms with much undepreciated fixed capital having low historic cost.
4. Marginal firms making only inflated profits.

It would be less advantageous to:

1. New investment.
2. Growth firms and growth industries.
3. Industries using fixed assets with a short economic life.
4. Efficient firms earning high rates of profit.
5. Industries having a high wage bill relative to their depreciation charges.

"These relative advantages conferred upon differently situated firms and industries constitute important economic consequences not only of concern to the corporations which would be differently affected but also for government economic policy. Replacement cost depreciation has some of the characteristics of an excess profits tax. It raises the floor above which earnings are subject to tax and imposes a higher tax rate upon earnings above that floor. It follows as a corollary that replacement cost per se cannot be claimed to be an incentive to new investment. The additional disadvantage of replacement cost — that it would greatly complicate tax programmes designed to slow down inflation — has received more attention in the literature."

The discussion on historic costs vs. replacement cost depreciation continues unabated since the late forties[2]; thorough studies into the merits and demerits, advantages and disadvantages, effects and counteractions of the alternative methods have been made in other countries; of

[2]George Moller, Historic Costs — The Lesser Evil — The Canadian Chartered Accountant, July 1949 (p. 21).

most interest to Canadians are those made in the United States[3] [4] but heretofore no organized attempt had been made to ascertain basic data, even on a test check basis, in Canada. To fill this gap, which has been realized by the leading organizations in industry (The Canadian Manufacturers Association), and accounting (Canadian Institute of Chartered Accountants), the Legislation Committee of the Society of Industrial and Cost Accountants of Canada has embarked on a study of the problem.

It would be technically impossible to reproduce all the material which has been reviewed in the course of this study, but an attempt will be made in the following to present the main sources of information used with due emphasis on the most recent writings.

The replacement costs depreciation problem is only one factor of the complex question of accounting for changing values of the monetary unit.

The starting point for the study was, therefore, the publication of the Taxation Research Committee of the Association of Certified Incorporated Accountants in England[5] which comes to the conclusion "that the current cost of exhaustion of the fixed assets is the depletion in its current capital value resulting from current use. This depletion must be measured as a current cost of replacing the assets in the condition with which it commenced the period." An elaborate technique for replacement cost accounting is suggested which claims to be "providing opportunity for exact replacement". Future costs of replacement do "not require replacement now, only the current cost which has been absorbed in production during the period under review."[6] [7]

The next major publication covering the object of Research is the Sixth International Congress on Accounting, 1952, Papers and Sessions, under the heading "Fluctuating Price Levels in Relation to Accounts", which covers 140 pages of information on not only the thinking but also the actions taken in this respect even in non-English speaking countries.

In the summary on the discussion at the Sixth International Congress on Accounting, it was clearly stated that "we are allowing the Government to exact a greater amount in taxation and we are allowing the workers to get a false impression of the profits of the undertaking so that, in consequence, they make their claims higher." It is not surprising that the participants of the discussion from the European continent were approaching the problem in a much more decisive

[3] Ralph C. Jones, Effect of Inflation on Capital and Profits: The Record of Nine Steel Companies — The Journal of Accountancy, January 1949.
[4] E. Cary Brown, Depreciation Adjustments for Price Changes, Division of Research, Graduate School of Business Administration, Harvard University, Boston, 1952.
[5] Accounting for Inflation — A Study of Technique on the conditions of Changing Price Levels; Gee & Co. (Publishers) Ltd., London, England, June 1952.
[6] Kenneth Byrd, Accounting for Inflation, The Canadian Chartered Accountant, January 1953 (p. 13).
[7] George Moller, Accounting for Inflation, Books in Review, Cost and Management, January 1953 (p. 10).

manner because it must be realized that the complete deterioration of monetary values which has taken place in their respective countries is a phenomenon almost incomparable to the development called "inflation" on this continent. England takes a place more or less between the two extremes; but, even in countries affected by inflation to the extent of price increases of 100 to 120 times the pre-war level, replacement cost accounting has not been adopted, but rather certain concessions have been made in the direction of re-valuation of assets for the purpose of depreciation provisions. This summary is borne out by the remarks made by the French delegate, F. L. Bouly:

> "Various countries have, in fact, voted laws relating to changing price levels as affecting fixed assets and stocks but, at least in the case of France, such legislation is more of a fiscal nature rather than the official recognition of revised accounting principles, and these laws have usually appeared in countries where inflation has been sufficiently severe to make the remedies imperative. We feel that all the delegates of the associations represented at the Congress should, upon their return to their respective countries, form committees with a view to defining their point of view on a national basis."

One of the papers presented at the Congress was reprinted in Canada[8]. Another contribution to the discussion in Canada, influenced by continental European thinking, was made by the new Treasurer of Philips Industries Limited, of Toronto, Peter Bakker[9].

Mr. Bakker observes that the greatest difficulty in replacement accounting in a company which manufactures a great variety of products is the setting of index numbers, based on price fluctuations according to price quotations during the period under consideration.

Coming closest to home is the study prepared by the Division of Research, Graduate School of Business Administration, Harvard University, Boston, in 1952, which appeared as one in a series on the effects of taxation.[10] This book comes to the conclusion that no proposed method of dealing with the spread between the historical and replacement cost of capital asset has yet received general acceptance and no provision has been made for it in the tax law (in the U.S.A.).

The study is concerned with the magnitude of the effect on national income and federal income taxes in the United States, if replacement depreciation were applied for tax determination. The author arrived at the general conclusion that historical cost depreciation is more desirable than replacement cost depreciation for tax determination. The great diversity in the movement of asset prices would cause great injustices if the adjustments were based on an overall index.

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[8]E. Goudeket, Fluctuating Price Levels in Relation to Accounts, The Canadian Chartered Accountant, April, 1953.
[9]Mr. Peter Bakker, The Method of Replacement Accounting, The Canadian Chartered Accountant, August, 1952.
[10]E. Cary Brown, Depreciation Adjustments for Price Changes.

It was this study which suggested the survey now planned by the Legislation Committee of the Society of Industrial & Cost Accountants of Canada. This survey is an attempt to determine the magnitude of the effect of replacement cost depreciation on the Canadian economy. In view of the rapid development of this economy, it is possible that the effects here could differ quite substantially from those found in the United States.

Of the many articles reviewed, the one by John N. Myer, Professor of Accountancy in the School of Business & Civic Administration of the City College of New York[11] deserves particular attention, because it arrives at the conclusion "that the depreciation charge has no effect on the working capital and is not a source of funds of working capital as alleged." Professor Myer closes his article with a full length statement: "There will be no solution to the managerial problem of replacement of fixed assets until the notion that depreciation is a source of funds is eliminated."

The increased importance which is now being accorded to the question of depreciation is borne out by the issue of a special pamphlet by the Small Business Administration in Washington, D.C., in the series management aids for small business,[12] which tries to clarify the question "What is depreciation?" The answer is that the two main influences are deterioration and obsolescence. A whole chapter in the pamphlet is devoted to the question of replacement under the heading "Depreciation does not provide for Replacement". The pamphlet states: "No practical depreciation formula will premit recovery of full replacement cost over the life of an asset during the period of rising prices" . . . "therefore, despite its iniquities, original cost has remained as the basis of depreciation cost finding for accounting and income tax purposes". On the other hand, the pamphlet states clearly that in setting sales prices, "depreciation costs should be computed from the present replacement value of one's assets rather than on their actual cost as in accounting and for tax purposes".

The weekly *Steel*, Magazine of Metal Working, devotes a whole leading article (No. 9 of the Management series to the Depreciation Reforms in the United States[13]. According to this article, original, not replacement, costs will continue as the basis for depreciation in the United States.

In reviewing the existing information on this subject, we would be amiss in not mentioning the chapter on the valuation of assets in Dr. Petrie's splendid book on *The Taxation of Corporate Income in Canada*[14]. Dr. Petrie devotes several pages to the discussion of depre-

11John N. Myer, The Current Depreciation Mirage, The Canadian Chartered Accountant, June, 1949.
12Alwyn M. Hartogensis, N.Y., Depreciation, Deterioration and Obsolescence, Small Business Administration of Washington, 25, D.C., August, 1953.
13Depreciation and Re-equipment, STEEL, the Weekly Magazine of Metal Working, November 2, 1953.
14J. Richards Petrie, The Taxation of Corporate Income in Canada, sponsored by the Canadian Tax Foundation, University of Toronto Press, 1952.

ciation based on replacement cost stating that "even if depreciation were admittedly the proper means of providing for replacement of assets, it is by no means certain that the replacement cost basis is the best or even a manageable way to achieve that end." He comes to the conclusion that both from a theoretical and practical viewpoint "the disadvantages of replacement cost seem to outweigh the advantages claimed for it by its advocates."

The Canadian Tax Foundation circulated in June, 1953, a questionnaire on capital cost allowances to all members of the Canadian Controls of the Controllers Institute of America. The results of this enquiry were discussed during the Seventh Annual Tax Conference convened by the Canadian Tax Foundation which took place in Winnipeg, on November 23rd and 24th, 1953.[15] The most important result of this enquiry was the confirmation of the claim that considerable misgivings are still shared by many accountants and financial controllers regarding the present system of capital cost allowances for assets imposed by the tax authorities. Only seven out of eighty-one replies indicated a preference for capital cost allowance based on the replacement value of their assets.[16]

It should be realized, though, that the replies to the questionnaire were given on the basis of personal opinion rather than based on ascertained facts and figures. It is the aim of the repeatedly mentioned enquiry launched by the Society of Industrial & Cost Accountants to provide figures at least on a test check basis.

It may well be that once the magnitude of the depreciation influence realized — which the Legislation Committee hopes will be the case after on financial statements and the results reported by companies is better the completion of the launched enquiry — a compromise solution may be indicated. This compromise would continue depreciation based on historic costs for accounting purposes but would require a statement on the effect of the replacement cost provisions, perhaps in the form of Notes appended to Financial Statements.

Just as this synopsis was being completed, the January, 1954, issue of *The Accounting Review* appeared. This issue contains a most interesting article by two members of Northwestern University[17], describing the application of "a workable method for adjusting the accounts on record for price level changes". The case study is based on the majority of the fixed assets of the International Harvester Company.

[15]Report of Proceedings of the Seventh Annual Tax Conference, convened by The Canadian Tax Foundation, Canadian Tax Foundation, Toronto.
[16]See Page 27 of the Data Paper, Capital Expenditures, included in the quoted Report of Proceedings of the Seventh Annual Tax Conference.
[17]T. J. McNichols and F. Virgil Boyd, Adjustment of Fixed Assets to Reflect Price Level Changes, The Accounting Review, January, 1954.

The following are the steps applied in adjusting the historical cost of the fixed assets to reflect price level changes:

Step 1: The historical costs of the fixed assets as carried on the company's ledgers were arrayed by dates of acquistion in groups having the same depreciation rate.

Step 2: The depreciation reserve based on historical cost was computed by applying the appropriate depreciation rate to the historical cost of the assets at the date of acquisition.

Step 3: In order to adjust to 1951 dollars the historical cost of the assets at the date of acquisition and the corresponding depreciation reserves based on historical costs were divided by the price index in the year of acquisition and multiplied by the 1951 price index.

The authors confirm that "it is essential to retain the historical cost records and, at the same time, to record the change in the accounts due to the fluctuating dollar." For that purpose, they use the dual column procedure and an unamortized price level adjustment account. The findings of the study are very revealing; the difference between the historical cost of the fixed assets and the cost adjusted to reflect price level changes for the period 1902-1951 amounted to $181.3 million, representing a 49.2% increase over the historical cost of the fixed assets at October 31st, 1951.

> "The corresponding adjustment of the depreciation reserve to reflect price level changes showed an understatement of depreciation charges of $105.6 million, representing an increase of 73.9% in the adjusted reserve for depreciation over the reserve for depreciation based on historical cost. The increase in the book value of the assets, which represents the net gain due to price level changes for the period 1902-1951, amounted to $75.7 million, an increase of 33.6% over the book value in terms of historical cost."

The study refutes the general assumption that plant acquisitions and retirements take place at a relatively constant rate and, therefore, adjustments for assets acquired at high price levels tend to be offset by the adjustment for the assets acquired at low price levels.

It is reassuring that the most recent thinking, as represented by the quoted study, tends to maintain historical cost depreciation for accounting purposes but acknowledges the importance of ascertaining the effect of price level changes on the fixed assets capital investments — which does not necessarily lead to the adoption of replacement cost depreciation accounting. The general conclusion arrived at by the Legislation Committee of the Society of Industrial and Cost Accountants of Canada is, therefore, that the enquiry on the way at present will produce valuable information for the development of depreciation thinking in Canada.

Property Records for Multi-Purpose Use . . .

By William B. Jones,
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In this article, the author shows why one company changed from ledger cards to a punched card system for property records. He compares the two methods, points out the advantages of the punched card system, describes how it works in actual operation, and discusses how it can be used more readily in preparing records and reports.

MANY companies who have run the gauntlet of ever changing property conditions know that such records can be time consuming and expensive to maintain. In many instances, this fact applies not to an all-inclusive multi-purpose record but to plain ordinary everyday property records.

The shifting of small machines, motors, and other odd pieces of equipment and accessories requires constant follow-up and record changes. The use of the conventional ledger card record system does not always provide for a flexible property-depreciation record. This is especially true when the same records are used for more than one or two basic purposes. Further complications result when it is desirable to keep the fully depreciated, sold, traded, or abandoned cards in the same file as those not fully depreciated.

The following study is based on the experience of one company that has converted from a very informal, limited usage ledger card property record to a multi-purpose punched card system.

The subject company has a two plant operation approximating two million dollars of capital assets. In addition, there are many dollars worth of insurable expensed items. The major pieces of equipment are depreciated at a rate of twelve to fifteen years. In certain instances the equipment continues to be in service beyond the depreciated date.

As is the case in many other property record systems, the original property records, to be discussed here, offers a fine example for systems review. This is true not only because the records proved limited as to multi-purpose use, but also because the system lacked the flexibility needed to expand with the company's normal, good business growth.

The Purposes of Property Records

Before attempting to arrive at a conclusion as to the disadvantages or inadequacies of the original ledger cards (not to mention the advantages to be gained by the use of a punched card system) it would be well to consider the purpose for which such records are established and the value of that purpose or use. These purposes, which follow, cover the basic uses applied by industrial organizations.

1. The basis for determining and scheduling depreciation expense as it applies to tax laws.
2. The basis for determining and allocating depreciation expense as it applies to production centers.
3. The basis for recovering depreciation expense in goods sold.
4. The basis for Balance Sheet valuation as to original and book value.
5. The basis for valuations in insurance claims, due to property damage.
6. The basis for properly valuing the property in order to maintain a sufficient yet minimum insurance coverage and cost.
7. To support in a detailed manner the Balance Sheet valuation and to detail the valuations by type or kind of property. That is, by:
   a. Land; b. Buildings (1. Construction; 2. Plumbing; 3. Heating; 4. Power factilities); c. Machinery; d. Tools and Service Equipment; e. Furniture and Fixtures (1. Office — Administrative; 2. Office — Sales; 3. Plant).
8. To have available a ready reference record for data on:
   a. Technical description; b. Location; c. Repairs and maintenance; d. Date, method, and result, in case of sale, trade-in or abandonment.

In addition to these major purposes or uses, various industries or individual concerns may have special requirements of their own. Considering the uses just outlined, it is apparent that the utility of an ordinary ledger card system is questionable. To provide for all uses, ledger cards must, in some method, be supported by duplicate records with cross-reference features. In the least, control cards, duplicating briefly the detail cards, with postings according to their use, would be necessary for a multi-purpose property record. This means that in many instances duplication of effort and records would result requiring considerable man-hours to maintain and, most important, keep up to date.

The property records of the company referred to in this study originally had three main purposes.

1. To support property valuations of the Balance Sheet.
2. To establish a schedule of depreciation expense for tax purposes.
3. To allocate to production centers, property valuation, and depreciation expense.

Ledger Cards for Fixed Assets

To provide for the needs just mentioned, individual ledger cards were prepared for each fixed asset item. This did not include land or buildings. These cards were filed by group classification (Machinery

Description

Purchased From

			Depreciation			
Date	Item	Amount	Year	Amount	Year	Amount
	5-51-530—65974					

ELECTRIC MOTOR

No.

H. P.

Model — Type

Volts — Phase — Cycle — Location

Amp — Duty — Temp Rise

Frame No. — Form

Serial No.

RPM Free — RPM Load

Catalog No.

Style

Specification No.

Size

Manufacturer

Purchased — From

Exhibit A1 and A2

and Tools — Type — Furniture and Fixtures) and within these groups, by year of purchase. At the time an item became fully depreciated, it was removed from the "active" file and placed in the "inactive" file. This was done even though the piece of equipment was still in service. The inactive file also included ledger cards on items that had been sold, traded, or abandoned.

In addition to the card record, work sheets were prepared and maintained according to department and cost center. From the cards, a brief description, original cost and yearly depreciation was copied on the work sheet. This served to allocate depreciation expense by cost center. However, as time passed, the sheets became dog-eared. Cost center figures became confusingly close to figures of other cost centers.

The ledger card (See Exhibits A1 and A2) provided a brief title description, vendor's name and address, and the expected life of the item. In the body of the card, the date of acquisition was posted, as well as a detailed description of the item and its accessories. In the columns to the right, the original cost, the yearly depreciation and the current book value were included.

Disadvantages of Ledger Card System

As the company operations expanded, the disadvantages and inadequacies of the ledger card-work sheet system became more cumbersome. This situation resulted in time-consuming clerical operations and intangible cost increases. For the most part, the disadvantages encountered were:

1. The individual cards were filed according to one fact and unless this fact was known, the locating of any one card required leafing through many cards.
2. The individual cards, having been filed according to one fact, afforded an opportunity for only one automatic analysis. Any additional analyses resulted in projects of card sorting, preparation of control cards or special work sheets or typing projects.
3. Property relocations resulted in adjustments and postings, not only to individual ledger cards, but also to control cards and work sheets.
4. Cross reference duplicate files became a must for quick reference.
5. The conventional ledger card system did not include current replacement costs and was therefore inadequate in arriving at insurance values. In fact, the ledger card system's lack of flexibility did not lend itself readily to insurance problems in general.

These inadequacies basically mean half-measure records, time consuming analytical projects or informal and rough work sheets.

Situations such as this usually travel the same road to duplications that are more costly, even though the cost is difficult to measure, than a more so-called elaborate system that may require a fairly high initial or set-up cost.

Advantages of Punched Card Method

In addition to the reasons already discussed as to why a change in fixed asset or property records was necessary, the company in question decided on a punched card method because:

1. The mechanical accounting equipment for punched cards was already being used for other accounting reports. It should be noted, however, that it is not an absolute necessity for a company to have this equipment when considering punched card methods. Certain companies operate service bureaus and will do work on their machines on a fee basis.
2. Punched cards can be sorted at a rate of 250 - 450 - 650 cards per minute. This means multiple use of the same card sorting or resorting into groups in a matter of minutes. In addition, the tabulating machines are capable of adding at a rate of 100 or more cards per minute.
3. One punched hole in card can indicate an analytical code. Therefore, since small holes require less space than handwriting; more analytical data can be placed on one card.
4. The card which was proposed to replace the ledger cards included the same basic data as the ledger cards. Therefore, the new system retained all services performed before, plus many more.
5. The theory of multiple uses is a determining factor when deciding on a punched card system. This theory certainly applied to the intended use of the property records.

Ledger Accounts and Card Records Compared

The programme which is necessary to transfer property data from one type of a record to another is a big one. It is an opportune time to investigate any differences between the General Ledger accounts and the card records. It is also an opportune time to inventory the physical property because over the years, pieces of equipment do disappear or are removed without notice being given to the property accounting section. The case study which is the subject for this paper based their programme on an independent appraisal and inventory. This work was performed by a professional appraisal company. The entire programme of bringing the property data up to date and the transfer of the old records to the new was accomplished as follows:

1. An independent appraisal of all insurable items was made in order to: (a) obtain a current actual inventory; (b) establish current replacement values; (c) prove the sup-

porting card records and add to the record insurable expensed items.

2. Based on the appraisal and the card records, every item was assigned an identification number. Metal tags with these numbers stamped on them were purchased and attached to each property item.
3. The punched card form and resulting records or special analysis were designed to conform to the original management desires.
4. Punched cards were completed based on the appraisal, the the tagging operation and the old records.
5. As the tagging operations were performed, discrepancies between the ledger cards and the appraisal were investigated and noted for possible General Ledger adjustments.
6. Current purchases were recorded in both old and new records in order to maintain a current and complete record until the new punched cards were proved.
7. Finally, after all adjustments and current activities were completed, the punched cards were proved to the appraisal and to the General Ledger. The old ledger card records were discontinued.

A programme of record transfer described by the above seven steps does result in some temporary duplications. However, in order to utilize the internal staff without employing extra help, this programme can be accomplished on a part-time basis. In addition, experience has shown that, for the sake of consistency in allocating small pieces of equipment to certain categories, the number of employees performing this function should be as limited as possible. As to whether or not an appraisal is necessary, that is a decision which must be made on an individual basis. However, if a property record has not been reviewed or proved to the physical items or the General Ledger for some years, it is reasonable to assume that some evaporation has taken place. In addition, as compared to the cost of such an appraisal, it is good business to bring up to date the replacement values of all insurable property items. In some cases, it is not only discovered that the property records are not complete, but also that an inadequate insurance programme exists. Needlesss to say, too much insurance is money down the drain and too little could be disastrous.

Other than a sound basis for the property record and its continuation; the form design of the punched card to be used is a must to insure a successful programme. Considerable time and effort will be required to transfer to and prove the new records. Therefore, doing the job over or forgetting a need in the card usage should certainly be ruled out. Basically, the theory of punched card records means multi-uses and flexibility that will withstand years of normal business change.

The size of the card form to be discussed here is roughly 7⅜" x 3¼". Therefore, the information to be inserted on the card must conform to this size. The tab card, as it is usually called, has eighty punching spaces and therefore, the data or codes punched in the cards may not exceed eighty punched units. The punched information, however, can be supplemented by written information.

In designing the card, the first step involves the questions of What? Why? and Where? Without a doubt, the entire life and success of the system depends on the successful application of these three "W's". Exhibit B, is a card designed to replace the original ledger cards mentioned before as Exhibits A1 and A2.

The Three W's of Design

Considering the first "W" or "What", every need or requirement for which this record is to be used must be given thorough study. Card space is limited. The multi-use is a necessity and every detail is important. As each "What" is determined, its acceptance or rejection for record use must be based on "Why". As the list of needs and requirements reaches final acceptance, the information so desired may exceed the eighty punching spaces. However, the list should not be reduced until the form design has progressed further. As mentioned before and illustrated on Exhibit B, the punched data can be supplemented by handwritten information. The decision as to which information is to be punched and which is to be handwritten should be based on usage. An example of limited usage or just plain reference data would include vendor's name or detailed installation costs. Data of this nature usually has only a special reference purpose and therefore should be handwritten, not punched.

The third "W" — "Where", refers to the placement of the information on the card form. In considering a card with both handwriting and punched holes in it, thought must be given to the fact that the punched holes could obliterate the writing. Exhibit B illustrates that by placing the horizontal lines between the punch spaces, none of the writing has been punched out. This exhibit is an actual card in use. The card was written first and punched after. Although it requires neat penmanship, as all records do, the person writing the card does not have to cramp his normal style.

Unless the card is to be used in conjunction with some other type card, the specific location of certain data is flexible. One of the advantages of punched card accounting is the fact that any part or all of the punched data can be used or ignored as it progresses through the automatic machines.

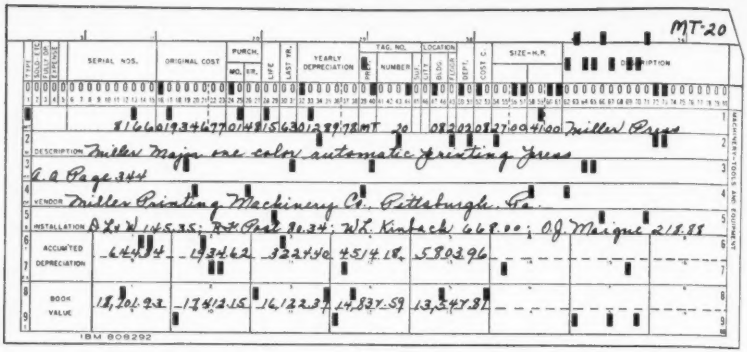

Exhibit B

A Punched Card for Property Records

In reviewing Exhibit B as a typical property record and starting at the top then reading from left to right, a card of this nature offers many uses. The first horizontal line over which appear small numbers (5-11-20-etc.) provides a space for mechanical interpretation. This means that in the event a second set of cards is reproduced from the original or handwritten set, an automatic interpreting machine will type, from the punched holes, the data across the top of the card. This eliminates a second handwriting chore. Cards automatically reproduced from the original master set can then be sent from a central record office to subsidiary companies or departments for on-the-spot management use. Again, since the punched data is that which is used most often, the lack of the handwritten data on the duplicate-triplicate set of cards is not of any consequence. Any one-time special references desired can be referred to the central record office.

The next card area in which column headings are printed represents the eighty punching columns. These eighty columns are divided into fields. Each field contains a fact or a code reference concerning the item of fixed asset. Exhibit B has seventeen major fields, four of which are divided into subdetail. For instance, the field titled "Location" is subdivided into City, Building, and Floor.

Column (or field) one, codes the card into asset and General Ledger categories such as Machinery and Tools, Motors, Plant Furniture, Office Furniture, Buildings, Type and insurable expensed items. This coding allows all types of assets to be filed together. In the event a tabulation is desired on only one type, the automatic tabulating machine will read and tabulate only the one category desired. This means various reports can be obtained with a minimum of filing and reshuffling effort.

Columns two, three, and four are codes used to indicate whether the card record represents an item that has been sold, traded, or

abandoned, whether the item is fully depreciated or not, and whether it is an insurable expense item. Again, these codes mean that, under any circumstances, only one file is necessary. In punched card accounting this coding which provides for automatic selection of any one type of item is referred to as digit or x control.

Columns six through fifteen indicate the manufacturer's serial number.

Columns sixteen through twenty-three are self-explanatory. The total of this field in all the cards would, of course, represent the asset value of the General Ledger unless the item is no longer in the plant operations or is an expense item.

At this point, it should be noted that the information punched in each column or field is handwritten within the card area of that column or field. For instance, on the fourth horizontal line from the top of the card directly under "Original Cost" and within the field area is written the cost $19,346.77. This feature makes it unnecessary to mechanically interpret the card. Also, the printed headings serve not only to designate punching area but also for making visual reading easier.

The next three fields indicate the month and year of purchase, the expected life, and the last year of depreciation. With this data, records or reports may be had by year of purchase or by life expectancy. The last year, of course, controls depreciation costs for tax and cost allocation purposes.

Yearly depreciation is recorded in the next field. The company in this case study operates under a policy of costing one-half of one year's depreciation for the year of purchase. Therefore, with the exception of items purchased, sold, or becoming fully depreciated during any one year, the depreciation field represents, for records and reports, the depreciation costs. The exception items are tabulated separately and the cost results are usually used at 50% of total.

The field for Tag Number identifies the item by the companies internal item control number. This number is the same as described before as being stamped on a metal plate and fastened to each piece of equipment. The prefix indicates the asset category, "MT" as Machinery and Tools, "M" as Motors. The suffix has been provided for attachments or accessories that are often purchased separately from the major piece of equipment. In this way, the accessory is assigned the same base number as the major item with an additional suffix number added. For instance, assume the major item to be numbered as MT 152. Its accessories would be assigned number MT 152-01; MT 152-02, etc. In this way, accessories can always be reported as part of the major item or, if desired, costed separately. This is important if it is desirable to capitalize an accessory with an estimated life different from the original or remaining machine life.

Location provides coding for multi-plant operations. It indicates the city, building, and floor in which the item is being used. This type of coding makes the tag numbering systems more simple. It does away with the need for separate equipment number series in various locations. In addition, the locating of individual items in the event of partial plant destruction can be made without question.

Department and cost center codes also provide locations. However, the primary purpose is to automatically tabulate depreciation costs by production department and cost center.

The field for Size or Horse Power is divided into width and length areas for size. These subdivisions are further divided for decimal positions. Exhibit B indicates the machine specification size to be 27″ x 41″.

Many automatic machine records taken from punched cards are not complete in their descriptions, in that numerical codes are used instead of words. The system here, however, includes an alphabetical description of each item. This information is punched into the last field of the card titled "Description". When any report is run by item, its description is printed. Exhibit B includes the words "Miller Press". This feature makes it unnecessary to have a code book for descriptions. It also makes the use of the card more valuable, since completed reports can be prepared for executives or other external uses without additional typed descriptions or explanations.

The body of the card includes a detailed description of the piece of equipment, a reference to the original appraisal records, as well as the vendors indentification and installation costs.

The two lower sections of the card supply information as to the accumulated depreciation and the book value. This operation must be performed yearly. It can be performed as a hand calculation or an automatic one described more completely later in this review. In some specific installations this data may not be necessary. However, it does serve as a control on card coding as it applies to fully or not fully depreciated items. It also provides visual information on the current book value of each item of fixed asset.

Reports and Records Prepared from Punched Cards

With the information so readily available in a set of punched cards a few of the reports or records that can be prepared are:

1. Catalogues of fixed asset according to: a. Tag number: b. Alphabetical description; c. Year of purchase; d. Location.
2. Depreciation costs by: a. Major location or plant; b. Department; c. Cost center.
3. Depreciation costs on equipment fully depreciated that is still in service. This cost may be desirable for estimating

and internal costs. The card system allows its use internally with simple facilities for removal for tax purposes.

4. Schedules of original cost as compared to depreciation, year of purchase, and life, for loss claims or general insurance review.
5. A continuous unabridged reference file on all property items whether they are still in service, sold, traded, or abandoned.
6. As mentioned above, accumulative depreciation costs and current book values can be computed automatically. Column 5 in Exhibit B has been left blank for this purpose. However, because the column becomes double punched, this automatic calculation can be made for a period of years. The theory is to punch in the card at the end of each business year, a punch indicating the elapsed time. For instance, an "A" punch for the first year, a "B" punch the second year, and so on. Through the use of this indication and by multiplication and subtraction, the automatic Calculating Punch will compute the current information in trailer cards.

In conclusion, it must be recognized that this review has been general in nature; that each individual application will have specific desires or card forms that may alter theories reviewed here as well as different machine capacity. However, this review has discussed briefly the basic needs of industry for plant or office property records and can serve as a jumping-off point. Good property records are more than an itemized list of tools and equipment. Destruction insurance claims increase year to year and therefore, good sales and production planning should be supplemented and safeguarded by adequate insurance protection and "know where we're going" property record.

"That chair," a businessman told a visitor, "cost $5,000."

"Says you!" replied the visitor. "How could a chair like that be worth $5,000?"

"That's what it cost me last year," the businessman explained. "Sitting in it and thinking, instead of going out after business."

— *Tax Topics*

Student Section . . .

Comments by J. D. CAMPBELL, C.A., R.I.A.

ACCOUNTING I — 1953 EXAMINATION

QUESTION IV (15 marks)

The BZB Co. Ltd. manufactures threshing machines which it sells through various agencies on a consignment basis. The agencies remit to the BZB Co. on the 25th day of each month, making a deduction for commission of 20% of the sales price of machines sold plus expenses incurred and rendered an account sales at the end of the month. On 12th June, 1952, the BZB Co. shipped to the Con Sign Co. 8 machines each of which cost $600.00. The sales price is fixed at $1,000.00. Freight amounting to $100.00 on each machine was paid by the BZB Co.

On 16th June, the Con Sign Co. paid drayage charge of $50.00 per machine and assembling costs of $25.00 per machine.

On the 20th June, the Con Sign Co. sold 2 of the machines for cash and on the 28th, 3 machines were sold for cash.

The BZB Co. maintains continuous inventory records and takes off statements monthly to show, amongst other things, the profit or loss on consignment sales.

REQUIRED:

(a) Entries in journal form of the BZB Co. Ltd. in respect of the foregoing transactions for the month of June 1952.

(b) Entries in journal form of the Con Sign Co. in respect of the foregoing transactions for the month of June, 1952.

(c) Statement of profit on consignments for the BZB Co. Ltd. for the month of June, 1952.

SOLUTION TO QUESTION IV

(a)	Dr. Consignment Con Sign Co.	$4,800.00	
	Cr. Finished Goods Inventory		$4,800.00
	Dr. Consignment — Con. Sign Co.	800.00	
	Cr. Bank		800.00
	Dr. Consignment — Con Sign Co.	1,000.00	
	Bank	1,000.00	
	Cr. Consignment — Con Sign Co.		2,000.00
	Dr. Con Sign Co.	2,400.00	
	Consignment — Con Sign Co.	600.00	
	Cr. Consignment — Con Sign Co.		3,000.00
	Dr. Inventory on consignment	2,325.00	
	Cr. Consignment — Con Sign Co.		2,325.00
	Dr. Consignment — Con Sign Co.	125.00	
	Cr. Profit and Loss		125.00
(b)	Dr. Consignor — BZB Co. Ltd.	600.00	
	Cr. Bank		600.00
	Dr. Bank	2,000.00	
	Cr. Commissions earned		400.00
	Consignor — BZB Co. Ltd.		1,600.00
	Dr. Consignor — BZB Co. Ltd.	1,000.00	
	Cr. Bank		1,000.00
	Dr. Bank	3,000.00	
	Cr. Commissions earned		600.00
	Consignor — BZB Co. Ltd.		2,400.00

(c)

BZB Co. Ltd.
Profit on Consignment — Con Sign Co.
for the month ending 30th June, 1952.

Sales (5 x $1,000.00)	$5,000.00
Less Cost of Sales (5 x $775.00)	3.875.00
Gross trading margin	$1,125.00
Less commission paid (5 x $200.00)	$1,000.00
Net profit on consignments	$ 125.00

COMMENTS

This question was the most poorly answered of any of the questions and 63 candidates failed to make an attempt at this question in presenting their papers.

The primary difficulty in respect to those answering the question appeared to be a failure on the part of the student to understand the purpose for which the recording was being carried out. As the problem definitely stated that the profit on the individual consignment was to be determined it was necessary to set up the accounts covered in the journal entries in such a way that this might be accomplished. Credit was given in respect to those answers which gave an indication that the student recognized the above-mentioned principle. A certain degree of lenience was applied in grading this question as very few presented a solution similar to that which has been set out above.

In determining the profit on the consignment a degree of leeway was applied based on the students' interpretation of the costs which should be capitalized in valuing the inventory. The above solution to subsection (c) was, therefore, considered merely as an alternative in grading the question.

ACCOUNTING II — 1953 EXAMINATION

QUESTION V (15 marks)

On 31st December, 1952, E Limited entered into an agreement with A Limited to purchase all of the assets of the latter company. At that date the balance sheet of A Limited was as follows:

Assets

Accounts receivable		$245,000.00
Prepaid insurance		6,000.00
Inventory		150,000.00
Land		70,000.00
Buildings	$ 50,000.00	
Less reserve for depreciation	10,000.00	40,000.00
Machinery and equipment	$175,000.00	
Less reserve for depreciation	20,000.00	155,000.00
Government of Canada bonds		10,000.00
		$676,000.00

Liabilities

Bank overdraft	$ 500.00
Accounts payable	390,000.00
4% first mortgage	100,000.00
Reserve for taxes on income	60,000.00
Share capital — 900 shares of $100 each, fully paid	90,000.00
Earned surplus	24,000.00
Capital surplus	5,500.00
General reserve	6,000.00
	$676,000.00

The agreement provided that the assets should be purchased on the basis of the values stated in the above balance sheet except that, $22,000.00 should be allowed off the accounts receivable and $29,000.00 off the inventory, and $1,000.00 would be paid for prepaid real estate taxes and $35,000.00 for goodwill.

The consideration for the purchase was:

(a) P..yment of sufficient cash to cover the accounts payable, reserve for taxes on income, and the first mortgage plus the premium thereon of 7½%.

(b) Payment of $75.00 cash and 2 shares of no par value in E Limited for every share of A Limited outstanding. (E Limited shares to be taken at market value at 31st December, 1952, viz. $20.00 per share.)

REQUIRED:

Journal entries to record the above transaction on the books of E Limited and of A Limited.

SOLUTION TO QUESTION V

(a) Entries on books of E Company Limited

Dr. Accounts receivable	$245,000.00	
Prepaid insurance	6,000.00	
Inventory	121,000.00	
Dominion of Canada bonds	10,000.00	
Land	70,000.00	
Buildings	50,000.00	
Machinery and equipment	175,000.00	
Prepaid taxes	1,000.00	
Goodwill	35,000.00	
Cr. Reserve for bad debts		$ 22,000.00
Accumulated depreciation buildings		10,000.00
Accumulated depreciation machinery and equipment		20,000.00
Due to A Company Limited		661,000.00
Dr. Due to A Company Limited	$661,000.00	
Cr. Bank		$625,000.00
Share Capital		36,000.00

(b) Entries on books of A Company Limited

Dr. Realization Account	$676,000.00	
Reserve for depreciation buildings	10,000.00	
Reserve for depreciation machinery and equipment	20,000.00	
Cr. Accounts receivable		$245,000.00
Prepaid insurance		6,000.00
Inventory		150,000.00
Land		70,000.00
Buildings		50,000.00
Machinery and equipment		175,000.00
Dominion of Canada bonds		10,000.00
Dr. Due from E. Company Limited	$661,000.00	
Cr. Realization Account		$661,000.00
Dr. Bank	$625,000.00	
Investment in Common Shares E Co. Ltd.	36,000.00	
Cr. Due from E Company Limited		$661,000.00

COMMENTS

In answering this question the information given in respect to the amount of the payment of cash was designed to present a basis of calculation rather than the data for entries to be made. In submitting the answer to this question students attempted to reflect the actual settlement and winding up of the companies. It will be noted from the question that all that was required was the recording of the transactions which did not involve the settlement of the liabilities and the disbursement of the assets.

In the majority of cases the calculation made was satisfactory and although additional entries were made, indicating a mistaken interpretation by the student, no penalty was imposed for this additional information.

Eighteen students failed to attempt this question but of those attempting it an average of 11 marks was made.